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ABSTRACT

The goal of the research reported here was to examine how teachers perceived their role as coach, as well as how they actually interacted with students in a computer simulation environment. Simulations like "The Chelsea Bank" significantly impact the role of the teacher in the learning environment. The learner is placed in the role of decision maker and problem solver while the teacher, no longer presenter of information, becomes coach or guide. For this study, teachers were selected who had training and/or experience in the use of "The Chelsea Bank" simulation. Data were collected from interviews with teachers and from videotaped observations of classroom interactions. Teachers were found to want the simulation experience to be meaningful but they did not actually facilitate a learning environment of that kind. There was little student-teacher interaction and that was generally student, not teacher-initiated. The dominant teacher responses were directive with no discussion of why a certain step should come next or what the overall goal for a procedure was. It was evident from reviewing the videotaped sessions that it does not take much more time to promote inquiry than to provide information. Most student-teacher interactions were very short, regardless of the approach. It is expected that as teachers become familiar with the promoting inquiry model, the level of discussion in these classes will increase. (JLS)

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Student-Teacher Interactions in *The Chelsea Bank* Simulation[1]

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ED 407 392

Simulations like ***The Chelsea Bank*** significantly impact the role of the teacher in the learning environment. Simulations place the learner in the role of decision maker and problem solver. The content to be learned is encountered in the process of problem solving. Thus the role of the teacher can no longer be that of presenter of information. Instead the teacher must work with the students as a coach or guide, supporting their problem solving skills. This task is further complicated by the fact that the students' work is structured in part by the simulation environment and hence deeper probing may be required by the teacher than is required in a typical collaborative group situation if the teacher is to understand and coach the students problem solving.

Given this context, we sought to understand how teachers interacted with their students. Teachers working with Classroom Inc. are told that they must be "coaches" and "facilitators" -- our goal was to understand how they interpreted that role. We interviewed teachers asking them to identify what they felt was the most important thing for them to do while the students worked with Chelsea and we also observed the teachers working with students and analyzed the interactions in terms of how often they approached student groups, whether they initiated the approach or not, and what the basic strategy for interacting was. We can imagine the teachers reflecting any one of three broad frameworks of coaching:

Behavioral Coach. This coach focuses on correcting behaviors. The approach is to stay out of the way since coaching is only needed if things go wrong. Indeed, effectiveness is geared by how seldom interaction is needed. Interactions with the team occur only when the students ask for help or when the coach notices something wrong.

Knowledge Transfer Coach. This is the coach who sees his or her role as transferring expertise to the learners. There is frequent coaching but the approach is to direct the students performance based on the coaches knowledge of the scenario and his or her problem solving strategy. The effective learner is one who does it the way the coach does it.

Cognitive Coach. Be still my beating heart. Here is the coach we all look for. This coach is learner centered and cognition centered. He or she seek to understand how the students are thinking about the problem, if they are understanding the concepts

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and strategies they are applying. Rather than telling the students what to do, this coach asks questions on the "cutting edge" of their thinking (Fosnot, 1989[2]).

These three models can be distinguished by two criteria: the stimulus for interacting with the students and the pattern of information exchange. The behavioral coach will primarily interact with the students only when called upon, while the other coaching styles will include frequent unsolicited interactions. However, the knowledge transfer and cognitive coach can be distinguished by the directiveness of the comments to the students, with the former giving directions and the latter asking questions..

The goal of the research reported here was to examine how teachers perceived their role as coach as well as how they actually interacted with the students. In the first part of the study, we interviewed teachers. In the second part, we observed a subset of those teachers during a Chelsea Bank computer session. This was part of a larger research study so our focus was on one particular group of three or four students in each class. It is the interaction of the teacher with that group that provided the data on frequency, stimulus for, length of, and nature of the teacher-student interaction.

Method

Phase 1

In Phase 1, eighteen teachers who had at least one semester of experience working with Chelsea Bank participated in this phase of the study. The teachers were all part of the Classroom Inc. partners group where the goal is to share experiences and strategies and assist in helping to better understand the effective use of the simulations. All participation was voluntary.

Thirteen of the teachers responded to a survey administered during one of the Classroom Inc. workshops. The questions on the survey were open ended and covered a range of issues related to their beliefs and strategies in using the Classroom Inc. simulations. The question of interest to the present study asked them to "When you are with the students while they work with Chelsea Bank, what are the most important things for you to be doing?"

Five teachers were part of a more detailed effort in which a research team was interviewing students and teachers and videotaping a group of students during specific Chelsea sessions.

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[2]Fosnot, C. T. (1989). *Inquiring Teachers Inquiring Learners. A Constructivist Approach to Teaching.* New York, NY: Teacher's College Press.

These teachers were interviewed, but were asked the same basic set of questions as those teachers surveyed.

The questions of interest to this study from these instruments include:

- What are some of the things a teacher can or should do to help students learn from ***The Chelsea Bank***?
- During the scenarios, do you talk with the students to help them better understand what is going on? If so, what kinds of things do you talk to them about to make sure they have learned?
- If you were going to help another teacher use ***The Chelsea Bank***, what advice would you give about what the teacher should be doing while the students work on ***The Chelsea Bank*** to help the students get the most from the computer experience?

There were several other questions included in the questionnaire and interviews, however they cover topics other than student-teacher interactions.

Phase 2

Six teachers participated in this phase of the research. The teachers were part of a year-long research project on the use of Chelsea Bank. Four of the teachers participated in 1995-1996. One of those teachers and two additional teachers participated during the 1996-1997 school year. All of the teachers had at least one year experience in using Chelsea. The schools, teachers, and grade level involved are shown in Table 1. (All names are pseudonyms.)

During the school year the teachers and students permitted us to videotape three or four class periods during which ***The Chelsea Bank*** simulation was used. The camera was positioned on a tripod so as to be able to see the faces of one group of three children and as much of the computer screen as possible. The students also wore wireless microphones. Prior to this videotaping, there was at least one session in which the group was videotaped to get them use to the taping and to test the equipment. During the taping the camera was stationary. At times a researcher was present as an observer, but the observation was at a distance and there was no interaction with the students during the session.

In general the three scenarios videotaped were numbers 3, 8, and 11. Three and eight are bank teller scenarios and represent early and late experience in those scenarios. Scenario eleven is the third customer service representative scenario and was meant to provide some data on the transfer of problem solving skills across scenario types. In cases where four scenarios were

recorded, the fourth scenario was number 15 which is a customer service scenario and the final scenario of ***The Chelsea Bank*** program.

The videotapes were time coded and served as a basis for data analysis. The variables analyzed and the definitions are as follows:

- length of a scenario: a scenario began when the students clicked to bring in the next customer and it ended when the teacher indicated that the students should stop work.
- student-teacher interaction: Only interactions that occurred during the scenario were included. An interaction could be with the particular group of three or four students or with the class as a whole. The onset of the interaction was defined as when the teacher approached the students or began talking to the class as a whole. The end of the interaction was defined as the teacher leaving the group or telling the class to return to work. If the teacher only approached and observed the group of three students without ever saying anything it was still counted as an interaction since the teacher was monitoring the students activity.

Data analyzed for this report			
School (grade)	**Teacher**	**Scenarios 1995-1996**	**Scenarios 1996-1997**
Ellington (high)	Ms. Lawrence	3, 8, 11 (2 classes)	
Jackson (high)	Mr. Michael	3, 8, 11 (2 classes)	
JFK (high)	Ms. Williams	3, 8, 11 (1 class)	
South (high)	Mr. Mackey	3, 8, 11 (1 class)	3, 8, 11, 15 (1 class)
Dorian (middle)	Ms. Marley		8 (1 class)
Laramie (middle)	Mr. LaVoie		3 (1 class)

Each interaction was transcribed, timed, and scored. Then the entire collection of interactions was rated against itself to insure internal consistency. The interactions were classified as teacher directive, teacher guiding, or other. Any non-learning interaction was classified as "Other". These included fixing technical problems, returning papers that were not relevant to the working of the scenario, and disciplining students. Those interactions designated as "Directed" included incidents where the teacher merely provided an answer and walked away as well as those in which the teacher gave explicit step-by-step instructions for what the students should be doing. Finally, the "Guided" category includes all those interactions in which the teacher probed for a deeper level of understanding, asked questions to help the students answer their own questions,

or otherwise took advantage of teachable moments to push the students' growth further. We did not rate the quality of the interaction -- only whether it is was directive or guiding.

Some of the teachers included exercises outside of the simulation that helped tie the simulation into other learning experiences, we do not have complete details about those activities. We do believe that those are also important learning experiences and that the teachers' efforts in this area are as important as the area we focused on. However, we only have small pieces of information about these activities. For instance, Mr. Mackey required reflective, ethics based papers be written after each scenario. We do not have complete data on these exercises, nor any evidence of them other than the mention of them on the videos.

Results

Phase 1 – Findings

The teachers' opinions of what their roles are during the computer simulation and what kinds of interactions they should have with their students vary widely across our sample. Teachers tend to see their role during the computer portion of the simulation activities as being only question answerers or as walking around and make sure the students understand what they are doing. The few teachers who report that they ask questions during the simulation, ask questions such as, "Do you think this is a good choice?", "What if _____ were to happen?", and "Have you looked at all the options?" Many of the teachers who participated in the survey specifically answered that they do not like to interrupt students or that they take a "hands off" approach. They feel that they should introduce the scenario and stay out of the students' way. Table 2 highlights the answers provided to the questions:

- What are some of the things a teacher can or should do to help students learn each of those things listed above?
- If you were going to help another teacher use ***The Chelsea Bank***, what advice would you give about what the teacher should be doing while the students work on ***The Chelsea Bank*** to help the students get the most from the computer experience?

Some answers provided did not fit into the "Teacher Role" during the actual computer portion of the *Chelsea* activities (such as, 'go on a field trip to a bank'), these kinds of answers were excluded from the Table 1 data.

Table 1

Teachers' perceptions of the their role during *The Chelsea Bank* simulation

Teacher Role	Number of mentions
Walk around/listen	11
Facilitation activities	9
Guide the discussion/actions	5
Teach vocabulary	3
Foster cooperation	3
Offer encouragement	1

Of the nine teachers whose reported roles fell under "facilitation activities," only three teachers actually used the word "facilitate". Those three, however offered definitions of what they felt facilitation meant. One said that facilitation meant, "don't tell [the students] what to do, just listen...." another said that she "encourages students to think things out and discuss their decisions." A third teacher merely felt that her role was to help the students think things through. The other descriptions included under the facilitation category included leading students to their own decisions, modeling behaviors, asking questions, and checking for understanding of concepts. Interestingly, only two teachers mentioned asking questions as being an important role for a teacher during scenarios. This is especially unusual considering that ten teachers report asking questions during the scenario and eight of those ten were able to provide specific examples of the questions they ask.

When looking at the data for the question: "During the scenarios, do you talk with the students to help them better understand what is going on? If so, what kinds of things do you talk to them about to make sure they have learned?" some trends emerged. In the twenty responses (two teachers provided two different answers), only five of the teachers claim that they do not generally talk to the students during the scenarios. They tended to say that they like to maintain a "hand off" approach or that they do not want to interrupt the students. Ten references were made to asking questions. The teachers ask students "What if ____ had happened?", "Have you looked at all the options?" and "Have you looked at this?" While these represent a broad range of approaches, in each case the teachers are trying to be sure that the students understand what is happening and try to make sure they have thought through their answers. In two cases, teachers

say that they tell students what to do next when they talk to them during the scenario. Finally, two teachers provided answers such as, 'talk to the student about the experience' that really do not fit in the other categories.

Table 2

Types of interactions during *The Chelsea Bank* simulation

Interaction types	Number of mentions
Ask questions	10
Instruct students	2
Answer questions	1
Other	2
No interactions	5

Phase 2 – Findings

Quantitative analysis. Table 3 presents the frequency of teacher-student interaction during the scenario at each of the schools. Across the 24 Chelsea Bank scenarios there were only 82 instances of the teacher interactions with the groups. The student initiated interactions tended to be cases where the students would ask a question such as, "Can you make a check out to cash?" or "How do you spell Rodriguez?" In most cases, the teacher answered the student and moved on to another group. The teacher-initiated discussions were generally orders being given by the teachers about the way a scenario should be solved. The "other" category included both disciplinary (e.g., the teacher telling the students to get back to work) and interactions that had nothing to do with the scenario or the students work on the scenario (e.g., discussion of other projects.)

Table 3
Mean number of teacher interactions with students per scenario

		Instructional		Other	
School	# of scenarios	Student-initiated	Teacher-initiated		**Totals**
Ellington	6	.50	.33	.50	1.33
Jackson	6	1.00	1.17	0.00	2.17
JFK	3	1.00	.67	1.37	3.04
South	7	2.29	2.71	1.43	6.43
Dorian	1	1.00	0.00	2.00	3.00
Laramie	1	2.00	2.00	0.00	4.00
Mean	24	1.25	1.38	.79	3.42

Sixty-three of the eighty-two interactions (77%) were instructionally relevant with only 33 instructional interactions (40%) being initiated by the teacher. As shown in Table 3, the average number of instructional interactions with the student groups was 2.63.

We further classified the interactions as to whether the teacher was directive or guiding. The teacher was consistent within an interaction – we did not usually see a mixture of strategies. The exception to this was in longer interactions – those over a minute – in which the teacher had an overall tone of directing or guiding, but exhibited some qualities from the other classifications. In these cases, the interaction was rated according to the overall interaction style. In most of the shorter interactions, the teacher either directly answered a question, gave explicit instruction for what the students needed to do next, or asked a couple of guiding questions to help the students get back on track.

Of the sixty-three instructionally motivated student-teacher interactions only thirty were initiated by the teacher, an average of 1.38 interactions per scenario. There was variation across teachers: the teacher at South High initiated 2.71 interactions per scenario, while the other teachers initiated an instructional discussion fewer than one time per scenario. These data suggest very strongly that the dominant model of guide is to "stay out of the way". There is little, none in one case, instructional monitoring by the teacher.

Table 4

Average time spent for each interaction

School	Average time/interaction
Ellington	50 seconds
Jackson	36 seconds
JFK	87 seconds
South High	38 seconds
Dorian	25 seconds
Laramie	73 seconds

Sixty-three of the eighty-two interactions were instructional. Thus, the teacher only approached a group for instructional purposes 2.6 times per scenario. The median[3] length of the interactions only 24 seconds. Therefore, the teacher interacted with the students an average of 46 seconds per scenario where the scenarios generally took 35 to 40 minutes to complete. Considering the Phase 1 findings about what the teachers view their roles as, its not surprising that there were so few interactions. Our Phase 2 teachers, like the Phase 1 teachers, seem to prefer a hands-off approach during the scenarios.

We next looked at how the teacher responded to the student's request for information. In most of the sixty-three instructional student-teacher interactions, the teacher was asked a question that the students could have answered on their own with some guidance. However, in most cases (63%) the teacher provided an efficient response and moved on. Only twenty-three cases out of the sixty-three interactions (37% of the cases) involved the teacher providing an opportunity for the students to grow and learn from their question. The "Other" category in Table 5 reflects instances where the teacher either did not respond to the students' question or responded by asking a question such as, "What did you pick?" and walking away. These "Other" interactions are not counted in our assessment of instructional interactions.

[3]We report the median here because the scores are skewed in part due to a basement effect but also due to five extreme outliers of over 100 seconds each. The mean interaction time was 46 seconds.

Table 5
Teacher behavior in student-teacher interactions

	Directed/ provided information	Guided	Other
Ellington	1	4	3
Jackson	9	4	0
JFK	2	3	4
South High	26	9	10
Dorian	0	1	2
Laramie	2	2	0
Total	**40**	**23**	**19**

In summary, the teachers tend to stay out of the way while the students work on a scenario. However, when they did interact with the students they tended to act as knowledge transfer coaches. When teachers are initiating an interaction, it is usually to give instructions to the students. When the interaction is student initiated, the teachers typically responds by simply providing the requested interaction. When they don't just provide information they are almost as likely to ignore the question (the "other" category) as they are to engage the students in a learning dialogue.

A qualitative description. The description in the previous section provides data that suggests that teachers tended to be directive in their interactions with students. In this section, we attempt to provide a richer flavor of the nature of that interaction. In the following pages there are summaries of the interactions in each of the four schools sequenced from the site that was most learner-centered to the site that was most teacher-centered in terms of the pattern of interaction.

Each section begins with a discussion of the teacher's style with examples of that style. We then present a sample of interactions chosen because they represented typical for that teacher. The scenario descriptions are preceded by a number that refers to the Chelsea scenario. In cases where more than one class was used at a school, the class number is also provided before the description. (For instance, "3.2" means Chelsea scenario number 3, second class for the teacher.)

JFK High School The teacher at JFK High School showed the most evolution during the course of the three scenarios. In the early scenarios, she used the step-aside approach almost exclusively. By scenario 11, however, she had evolved to a learner centered approach. She stimulated the students' thinking with hard questions and encouraged them to discuss their ideas even when she knew that they were "wrong" according to the answers provided in the scenario.

In the most impressive discussion from any of the video records, the teacher at JFK tries to help the students express their thoughts and understand where they made their errors. It occurs after the student have called the teacher over because she told them to let her know before they answered the discussion questions in the simulation. (In the transcript, T= teacher and S = any of the group members)

T: "What was your reason for picking 'C'?"
S: "She's young, she wants a sports car even though she wrecked two in high school"
T: "What do you think Antoine?"
S: "Yes"
T: "Why"
S: "Like my partner said, she's young, when in high schools, she hit two cars."
T: "Do you want to go with C also?"
S: "Yep"
T: "Why?"
S: "She's about 22, She asked for over $10,000 and she may not even be over 20."
T: "There were 2 right answers"
S: "C & D - watch!"
T: "One was A"
S: "See I told you..."
T: "You said you agreed with C"
S: "I said A before we even did this"
T: "What do you think the other one [correct answer] was?"
S: "D"
T: "Why do you think that it was D?"
S: "Did we pick the right answer? Yes or no?"
T: "Why do you think it was D? Do you know what D was?" reads part of D to students
S: "She's young - she still seems wild"
T: "So, do you think its 'D'?"
S: "No, I still say its C"
T: "Antoine?"
S: "What's the 2 right answers?"
T: "A & B"
S: "What?"

T: Reads A then reads B "Do you think Ms. Austin's age should have been a factor into the decision about this loan?"
S: "In a way"
T: "Why should it be a problem?"
S: "We don't know her age. She doesn't have much experience."
T: "Did you check out her finances?"
S: "Yes"
T: "Did she have money in the bank?"
S: "She has $880 now"
T: "What do you think Gerome? Should her age be considered?"
S: "Yep"
T: "Why?"
S: "The girl looked young"
T: "So why should that enter into whether you give her a loan or not?"
S: "It interferes - she can pay it, but how do we know if we can trust her or not?"
T: "Well, if she was 40 years old and had the same account it would have been alright?"
S: "The point is that she had 2 cars and she trashed them"
T: "Do you think its appropriate to ask if she ever owned a car before?"
S: "Yes"
T: "Why?"
S: "If you get money, they should ask that"
T: "Why?"
S: "They're giving you money - Let's say they have a Honda and they want to go get a Mercedes just cause they want a Mercedes - they should ask."
T: "What do you think Gerome?"
S: "Same thing might happen - they might crash. They gotta know how you took care of the car."
T: "Is it appropriate to ask if the person had a loan to buy a car before?"
S: "Yeah, cause that's when you're trying to figure out if they're trying to burn you."
T: "Should the information about the 2 cars Ms. Austin had in high school being wrecked influence the loan? It did in your case didn't it?"
S: "Um hmmm"
T: "Do you think Ms. Austin handles money wisely?"
S: "She's single and has an apartment and buys clothes and stuff"
T: "We're going to have to shut this down for now - you can finish tomorrow"

Even though the students show no sign of reaching a better understanding of the flaw in their decision, the teacher remained very patient and tried to lead them to understand what happened. Unfortunately, when the students finished the scenario the next day, there was no further discussion of this. It is this kind of conversation, which lasted less than eight minutes, that will help the students grow intellectually.

Table 6
Typical interactions at JFK

Interaction: (Scenario 3) A student says, "It says 'Pay to the Order of Cash' Can you do that?" The teacher does something to indicate that you can.
Interaction: (Scenario 11) One student comments, "They don't say how old she is." The teacher responds by asking if they looked at her ID. One of the other students in the group says, "I say she's about 22"

Ellington High School. The teacher at Ellington displays elements of all three models for coaching. The main examples of an inquiry or learner centered strategy can be found in the lead-in and follow-up discussions with the whole class. Following is an example of the nature of the conversation at the end of the third scenario. The students speaking are the group we watched in the morning class.

> When the group finishes they cover up their monitor with a sheet of paper because they are embarrassed about getting the wrong answer. The teacher asks (as part of whole class discussion) "What happened?", the students say, "We got fired" and "We had to go to court." The teacher continues, asking, "Where did you go wrong?" The students say that they should have had the customer sign the check in front of them. One group member mentions that this never happens to him in real life - they just look at his ATM card. The teacher asks what the student thinks they want the ATM card for. He says, 'to check the account.' The teacher points out that it has a signature and is a form of ID, then she asks class to explain what might have gone wrong with this scenario.

This is a common conversation in the large class discussions following each activity. The teacher obviously wants all the students to think about what they are doing and provides a discussion that pushes the students.

This teacher, however, is almost absent from the video during the groups working on Chelsea. Occasionally, we see her walking around and glancing at the work the students are doing. Unfortunately, in some circumstances, the teacher's unwillingness to coach or help the students can actually be an inhibitor. One instance in particular stands out:

> The students call the teacher over and say, "None of the answers make sense" and then explain what they mean. The teacher says, "What do you think you should do?" The students say that the check is payable to "Cash" and they think that's wrong. They explain that they think a check cannot be made out to cash because a check needs to be written out to a person. Then, the teacher asks, "What's cash? What's the definition of cash?" The

> students try to look it up in the glossary, but it isn't there. One of the students offers, "Cash is money." The teacher responds, "What's money? Think about it..." and walks away.

In this case, the students were stuck on an issue that should not have become a major concern of solving the problem. The teacher was trying to promote inquiry and help guide the students to new knowledge, but instead left them frustrated and confused. This seems to be a potential problem for any teacher learning how to facilitate problem-based learning situations. They must learn to discern between opportunities to foster growth and getting in the way of learning.

Table 7

Typical interactions at Ellington High School

Interaction: (Scenario 3)The students say they are done and tell the teacher that 'That's 2 satisfied customers in a row'. The teacher asked what happened with the first one - the students say they got it right too, but she missed her brother's wedding, so the customer wasn't happy.
Interaction: (Scenario 11)This tape starts out with a long whole-class discussion introducing the ideas for getting loans. The teacher asks things as if the students were going to do it in real life ex. 'What if you were going to get a loan?' A little while into the conversation, the teacher notices that people in one part of the room are not paying attention, she starts specifically calling on them instead of other class members. The group we are watching quickly loses interest in the conversation and starts talking about other things.

Jackson High School. Jackson High School provided an unusual circumstance. The regular classroom teacher is not involved in the simulation. The person who acts as the teacher does a good job of trying to ask good questions and aid the students in learning. However, he never gets into the questions that would really make the students think, such as "Why?", he tends to ask the students to summarize what they have done. For instance, in the third scenario, the first group finished and the teacher asked what the problem was in this scenario.

> One student explains that someone brought in a check form a different branch and they had to decide whether or not to cash it. The teacher then offers, "you just needed a signature card?" The students tell him that they needed two IDs. Then the teacher asks if the customer was a friend. The students say "No, but the customer was well-dressed." The teacher laughs and thanks the students. This is a fairly typical follow-up dialogue at this school. While it confirms that the students did complete the scenario, it does not push them to reflect on what they decided. The teacher's questions also suggests that he is not very

familiar with the scenarios. However, he does not seek to learn from the students but simply drops the query when he is wrong.

The strictly hands-off approach used in this situation, does allow the students to develop their own ideas about how to solve problems. However, the students never get any guidance to help them understand where there plans need to be enhanced.

Table 8
Typical interactions at Jackson High School

Interaction: (Scenario 3) The students are discussing their inability to get information on the customer. The teacher explains that the credit check is for loans and this customer has an account so they need to check "accounts." The students type the name again, and the teacher, again, says they need the accounts page. The students say they tried that, then mention that they cannot read the customer signature well enough to spell the name. The teacher has them back out of the screen and shows them that the customer's name appears in print on the check. They go to accounts. The teacher points out that savings accounts are on one side and checking is on the other. Then he asks if the students are sure of the procedures and suggests that they "might want to check them."
Interaction: (Scenario 3)The students ask how they can ask the customer for identification. The teacher says they'll have to go on to the decision area in order to do that because that's where that is pertinent. He also mentions to read all the decision before picking one.
Interaction: (Scenario 8)The teacher discusses why the students made the right choice - all they needed was a signature card because the bank account was at Chelsea. He says "Good Job" and asks if they need anything else. Then says, "Thanks."
Interaction: (Scenario 8)The students are puzzled because they think C is the right answer except that the last sentence is rude (telling the customer that he needs a bath). The teacher says that they need to make a judgment because they have" to accept the whole answer, not just part of it." The student says that its about the ID that the guy doesn't have, but they can't tell him he stinks. Again, the teacher says that they will need to use their judgment - "you can't choose a part." The students ask once more. The teacher says, "choose the one that is most correct."

Interaction:
(Scenario 8)Teacher says - "Remember I told you to read the whole thing." The students discuss their choice , one says, "See, I told you".
The teacher says to read the other consequences. The students are puzzled by the correct answer. One says that thinking you're going to faint is just as bad as saying to take a bath. The teacher points out that "you think that, not say it." Then he turns to the problem and asks if the problem was with the check. The students say it was with the ID. The teacher asks what bank the check was form - they say it was written to the guy.
The teacher says, "Did you check the account?" and "Did it have money?" (Students say "yeah")
The teacher says the check was from Chelsea so they didn't need ID.
The students respond, "So we get fired, or quit - that's not fair because the first [correct answer] was rude too."
T -"But you thought that. Do you see the difference?"
S - "He didn't have any [ID]"
T - "Did you check his signature card?"
S - "Yeah"
T- "It was his signature and he signed it in front of you?"
S - "Try to say what rule book said"
Then the teacher tries an example from "real life" explaining what would happen if you go into a bank like this. One of the students says, "Oh yeah, my mom does that and she doesn't have ID"

South High School. The teacher at South High was easily the most director-like of any of our teachers. He consistently acted as an information provider. In fact, almost every instance of interaction with the students involved him telling them what to do next. This teacher is also the only one who specifically assigns tasks to the students. Each student has a particular "job" within the group - one types on the simulation computer, one types the rules on another computer, and the third is best termed the 'information manager'.

In one typical instance, the has a step-by-step procedure for his students to follow and refers to it occasionally when they ask him questions. For instance, in scenario 3, the students ask him if the page of the manual they are looking at is the correct page.

> Mr. Mackey responds by saying, "It says page 8 and 9. Go to page 9." He continues, pointing out that "step 2 is to obtain proper ID." Then says they need to check page 8 if they don't know what that means. Then the students ask if the steps listed are the steps for cashing the check. Mr. Mackey says, "Yes" and proceeds to explain each of the rules to the students. When he walks away, the kids start typing the rules, word for word, into the log that they are required to keep. In this situation, Mr. Mackey first told them exactly where to look for information, thereby preventing them from developing their own process. Then

> he immediately started explaining what was written in the manual. This furthers the relationship that is clearly set-up in the classroom where the teacher is the holder of knowledge and the students are dependent on him to dispense that knowledge.

In an example from the eleventh scenario, Mr. Mackey shows no sign of progress from the mindset in scenario 3. The students call him over because they do not know how to fill out part of the loan application.

> Mr. Mackey immediately tells them they cannot do that part of the loan application from the screen they are on. When the students ask why, he points out that the information they need is from the credit check screen and they are in the account information. Then he says, "This information has to come from the computer. Remember, I showed you the steps? When you get to that step, you fill out this information." This final statement confirms that he has not allowed the students to create their own problem-solving model. Furthermore, when the students asked "Why?" Mr. Mackey was given an opportunity to help them think through the situation to arrive at the answer. Instead he just gave them the answer.

Mr. Mackey's class is interesting in some good ways as well. Because the video often ran over into the part of class immediately following work on the scenarios, we were able to hear the large group follow-up discussion and the assignments he gave based on the Chelsea Bank scenarios. The assignments were writing assignments based around reflection on the scenarios. For instance, the assignment after scenario 8 made the students consider the following questions:

- Have you ever been treated rudely? How did it make you feel?
- Do you think there are circumstances where it should be allowed to turn away Mr. Smith? Where? When?
- When working at a job, do you have the right to act on your own opinions of customers? Why or why not?
- Do you think your attitude toward and treatment of customers can effect your business?

These questions all provide some opportunity for the students to reflect upon the Chelsea Bank activity.

Table 9
Typical interactions at South High

Interaction:
(Scenario 3)The teacher walks by and notices the students typing account information. He says they have to figure out what the transaction is, then asks them what it is. They reply, "Cashing a check." Mr. Mackey then tells them to read the manual first, then look at the account information because they can't know what's important without checking the manual.

Interaction: (Scenario 3) A student asks, "Mr. Mackey, how do you spell her name?" He spells it as he walks by. He gets almost past and backs up. Says "You're in credit check" and points out that there are 2 things to check. He says they need to look at accounts. Student mentions that they've checked 3 times. As he walks away, they ask him how to spell her name again - he looks at machine they are taking notes on and points out that they have it.
Interaction: (Scenario 3) Student asks, "Does she have to sign again?" Mr. Mackey says that its confusing because they don't know if she signed it there or elsewhere. They say her signature matched. He says good, then asks if the quietest group member agrees. (Everyone in group says yes.)
Interaction: (Scenario 11) Mr. Mackey walks by and looks at the loan application form students are filling out. He says, "to fill this out right, you have to have something up here" [points] "because this is so long, you need to do [unintelligible]"
Interaction: (Scenario 11) A student asks, "What do you put for bank?" Mr. Z points out how to read the credit report. One item is a credit union. Students ask what this is. Mr. Z says it like an employees bank. Mr. Z says they have to check everything out to see if the credit is good - "is there a history of bouncing checks? Does the person have savings?" Then he has to show students again how to read the report - they are trying to use Chelsea Credit Union as a bank name (its ABC Credit Union, but they couldn't read it all, so rather than scroll, they assume Chelsea is also the name of the credit union.)
Interaction: (Scenario 11)The students are reading the screen as the teacher walks past. They turn around as he goes by and ask "Is this what we need to do for you? Get one of these?" Mr. Mackey says they have to find the customer service rule that applies to today's lesson.

Laramie Middle School. Mr. LaVoie is one of our two middle school teachers. He has taken a different approach to ***The Chelsea Bank*** than our other teachers have. He builds multiple days worth of lessons out of each scenario. Often, scenarios take 2 weeks or more to work through with almost all of the work being done away from the computer. By doing this, Mr. LaVoie is able to cover many of the harder to get at issues involved with Chelsea Bank such as ethical issues. Surprisingly, however, during the students' time on the computers, Mr. LaVoie's actions and responses and his students' struggles and questions are not unlike what we have seen in the other schools we have looked at.

Overall, Mr. LaVoie tends to be a guide to his students, but there is a tendency underlying his facilitation to switch tot he role of a director. For instance in one interaction, which lasted three minutes and twenty-five seconds, he begins as a director, switches to a guide, goes back to being a director, and ends as a guide, but in the middle he acts as a director. (In the transcription, L represents Mr. LaVoie, and S indicates one of the students in the group is speaking.)

S: We have to check her signature and stuff right?
L: Let me take a look at Report?
S: We didn't do report yet.
L: [stutters]OK, go to Return. My first question is, 'Is this check she gave you good?'
S: Yeah
L: Did you check it?
S: Yeah
L: Bring the check up again. Is the date good? You two have to check it over.
S: It said December 15th.
L: Does she have this much money in her account?
S: Yes.
L: Did you check her account?
S: Yes we did. She has $18,000.
L: Okay, did you check the signature?
S: Yes we did, there's [unintelligible]
L: Where's the signature card? Let Franz do it...Franz, where's the signature card?
S: Here. [points to the screen]
L: Really? There's another one there that says signature card.
S: Oh yeah. We went to her account and it said the same thing. It all looks the same. It would be different if she made a bigger "g." Her handwriting is so sloppy we could hardly tell.
L: Check. Does it look correct to you?
S: Yes it does.
L: What about to you Franz?
S: [hesitant] Yeah.
L: No - look before you say 'yes.' [Franz leans closer to the monitor.] Does it look correct? Does it look the same?
S: Yes it does.
L: Okay. How do you know its Rosa?
S: Franz you have to check, ummm
S: Identification
L: Okay – she produces identification.
S: You call the branch.
S: She could have stolen somebody's card.
L: What if – I'm going to give you a suggestion. Say she's not Rosa Rodriguez. She pickpockets someone and the check was already signed – in Rosa's handbag signed. She pickpockets her, takes her wallet, takes her checkbook, and now she presents this.
S: That's what I'm saying. No, I mean – sign the check again – then it'd be like – you can't scribble on the check or something, then it would be....

L: Let me ask you something. How would you check? What if I come in and say I'm Alfonza and I already have a check signed by him. I have a credit card. How do you know I'm Alfonza.
S: Maybe I'd ask them to sign – sign over again.
L: Yeah. You can ask me to sign a second time.
S: How do you ask them to sign a second time?
L: You open your mouth and say, 'Ms. Rodriguez, will you please sign this check again?'
S: We can't do that! We're talking to a computer.
L: It'll be in the decisions. You're going to look for a decision that suggests something like that.
S: [after a pause while Mr. LaVoie talks to someone else] Are we going to be asked more questions today? [referring to written questions, not an interaction]
L: No, not today. We're just going to try to finish.
S: [Pause]Can we go to done now?
L: First go to decisions and choose one. Now, they're getting complicated --
S: I know.
L: You two better read first.

Because we have only looked at one video with Mr. LaVoie so far, it is hard to determine which style he will follow most often. He obviously knows how to direct and how to guide. The other interactions with the students tend to be more directing and involve the students asking a question and Mr. LaVoie telling them exactly what to do next.

Dorian Middle School. Ms. Marley is the sixth grade math teacher for one magnet at her school. She has been using ***the Chelsea Bank*** for at least two years. She has incorporated it into her math class by building activities around it that involve math concepts and, in past years, has been able to set-up a mock economy.

As with Mr. LaVoie, we have only analyzed one tape of interactions for Ms. Marley's class. It is, again, hard to determine what kind of overall style she has. Unfortunately, in the one tape that we have analyzed, two of the three interactions for her are dealing with non-instructional issues. The one instructional interaction provides a picture of Ms. Marley as a guide: (M signifies Ms. Marley, S signifies a group member is speaking.)

M: What happened in this scenario?
S1: The guy - Mr. Smith is a smelly guy, but we don't know if he's really Mr. Smith because he smells and he's dressed like a bum and we don't know what to do so
S2: We checked in the signature card and then it showed everything was in order.
S1: Yeah, and then we tried to pick A, B, or C. We picked A because it was the best one because B and C had insults in them.

S2: Against the man – and that's not right to insult him.
M: So the check – what's wrong with the check?
S: There's nothing wrong with it. Everything is in order.
M: Okay, go ahead.

Lessons Learned

The teachers at all six schools and all of the teachers surveyed seem to want Chelsea Bank to be meaningful to the students. Yet it is clear that they cannot yet facilitate in a learning environment of this kind. There is little student-teacher interaction at all during these scenarios. When there is interaction, it is typically student-initiated and generally involves a question that the student could have answered for him or herself with some guidance. The dominant teacher responses to the students when they ask questions are directing responses. Often the teacher demands that the student go to the next step in a specified procedure. There is no discussion of why a certain step should come next or what the overall goal for the procedure is. The teachers do not ask the students what they had in mind for solving the problem.

One teacher showed a significant amount of change over time. She moved to a point of being learner centered, promoting inquiry and critical thinking. Also, Mr. Mackey, over the two years we have taped him, has increased the amount of interaction he has with students. Other than that, there was little growth across the scenarios. The overall message here is that teachers can learn to be guides. They can be successful at asking questions that promote thinking and promoting students to think for themselves. However, they do not do this on their own. Some sort of training and support structure needs to be provided to help them understand how to become a guide rather than a teacher.

Finally, after watching and analyzing these tapes it is becoming apparent that it doesn't take much longer to promote inquiry than to provide information. Most of the student-teacher are very short regardless of the approach used. It is obvious that the teachers need more support in adopting the 'promoting inquiry' model, but once they become proficient at it, the level of discussion in the classes will rise with little extra effort.